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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/840,210	
	Filing Date	April 23, 2001	
	First Named Inventor	Khalil	
	Group Art Unit	1731	
	Examiner Name	Lopez, Carlos N.	
Total Number of Pages in This Submission	24	Attorney Docket Number	NL-000191

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Original plus two copies Brief on Appeal Return Postcard
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	John M. Kelly, Esq., Reg. No. 33,920 Moser, Patterson & Sheridan, LLP
Signature	<i>John M Kelly</i>
Date	June 2, 2004

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TOTAL AMOUNT OF PAYMENT (\$) **\$330.00****Complete if Known**

Application Number 09/840,210

Filing Date April 23, 2001

First Named Inventor Khalil

Examiner Name Lopez, Carlos N.

Group / Art Unit 1731

Attorney Docket No. NL000191

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit
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Large Fee Code	Entity (\$)	Small Fee Code	Entity (\$)	Fee Description	Fee Paid
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1)

(\$)

2. EXTRA CLAIM FEES

Total Claims	Extra Claims	Fee from below	Fee Paid
20 **	0	18	0
Independent Claims	3 **	86	
Multiple Dependent			0

Large Fee Code	Entity (\$)	Small Fee Code	Entity (\$)	Fee Description
103	18	203		Claims in excess of 20
102	86	202		Independent claims in excess of 3
104	290	204		Multiple dependent claim, if not paid
109	84	209		** Reissue independent claims over original patent
110	18	210		** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2)

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**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

Large Fee Code	Entity (\$)	Small Fee Code	Entity (\$)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	330.00
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17 (q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3)

(\$) 330.00

SUBMITTED BY**Complete (if applicable)**

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June 2, 2004

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SN 09/840,210

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

PATENT APPLICATION



Applicant: **Mohammed Khalil**

Filed: **April 23, 2001**

Docket: **NL-000191**

Group Art Unit: **1731**

Serial No.: **09/840,210**

Examiner: **Lopez, Carlos N.**

Title: **METHOD OF MANUFACTURING A CATHODE RAY TUBE**

BRIEF ON APPEAL

COMMISSIONER FOR PATENTS
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Sir:

The following appeal brief is submitted pursuant to a Notice of Appeal mailed on April 6, 2004.

REAL PARTY IN INTEREST

The real party in interest is the Philips Electronics North America Corporation, a subsidiary of Koninklijke Philips Electronics N.V.

RELATED APPEALS AND INTERFERENCES

No other appeals or interferences that directly affect, or are directly affected by, or have a bearing on the Board's decision in the pending appeal are known to Appellant's legal counsel.

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STATUS OF CLAIMS

Claims 1-8 are pending and stand rejected and claims 9-17 are withdrawn. The

rejections of claims 1-8 are appealed.

STATUS OF AMENDMENTS

An "Amendment under 37 C.F.R. §1.116" was submitted on March 8, 2004. That amendment, which amended claim 6, was entered and an advisory action mailed on April 5, 2004 provides that the objection of claim 6 is overcome by the March 8, 2004 amendment.

Subsequently, a telephone conference with the Examiner was held on April 20, 2004. Based on that telephone conference, the Examiner amended claim 1 to add "during said cooling" just before the ending period. That amendment overcame previously existing rejections based on Torok (US Patent 3,258,324). Consequently all claim amendments have been entered.

SUMMARY OF INVENTION

The subject invention relates to manufacturing display tubes. More specifically, the subject invention relates to press-forming glass at high temperature to form a glass structure that has inner corners. That glass structure is then cooled in such a way that residual heat is controlled such that stresses in the glass corners remain, thus strengthening the final display tube.

The subject invention is motivated by safety concerns. Modern cathode ray display tubes are becoming larger and "flat" screen devices are in demand. Those developments tend to increase the weight of the display tube since more glass is required for size and for protection against implosion or explosion, reference page 1, lines 9-17. When manufacturing a display tube, glass is press-formed at high temperature, around 1000 to 1100 °C. As the glass cools inhomogeneities in the stress levels in the formed glass may occur, particularly at the inner corners of the tube. Stress in the tube, particularly at the corners is important for safety. Stress problems are increased by different cooling rates in the glass. In particular, residual re-heating (heat transfer from the bulk of the glass to the surface) at the inner corners can cause re-heating of the inner corners above the strain point, which relieves the stress. The

resulting reduced stress results in a display tube that is weaker and more susceptible to safety problems, reference, for example, page 1, line 26 through page 2, line 35 of the subject application.

The present invention is directed at manufacturing a display tube by reducing residual re-heating at the corners, which improves safety and enables lighter panels. A glass panel is press-formed by pressing a plunger 23b in a die 23a with molten glass disposed between the plunger 23b and the die 23a (reference Figure 2A). After forming, the corners of the plunger 23b are cooled by cold gas and, after forming, the plunger 23b is withdrawn. A heat transfer material (tissue) can be added at the corners to improve heat transfer of the material of the plunger to the glass. See, for example, page 4, lines 16-27.

The cooling of the corners by the plunger is performed such that the corner temperature remains near that of the center of the glass panel and below the strain point temperature of the glass, reference Figure 4B and its supporting text at page 5, lines 15 through page 6, line 6. This reduces stress differences and thermal relaxation of the stress at the inner corners.

For the convenience of the Board of Patent Appeals and Interferences, Appellant's claim 1 (the independent claim) is presented below.

1. A method of manufacturing a display tube comprising press-forming a glass panel to form inner corners and then cooling the formed glass panel such that surface temperatures of the inner corners remain below a strain point temperature during said cooling.

ISSUES

Whether claims 1-8 are patentable under 35 U.S.C. §103(a) over d'Iribarne et al. (US 4,826,522) in view of Littleton et al. (US Patent 2,285,596).

GROUPING OF CLAIMS

The rejected claims should be grouped together according to the grounds for rejection: 1-8 should stand or fall together.

THE REFERENCES

The following references are relied on by the Examiner:

Inventor	Document	Date
d'Iribarne et al.	US 4,826,522	May 2, 1989
Littleton et al.	US 2,285,596	September 12, 1939

BRIEF DESCRIPTION OF THE REFERENCES

d'Iribarne et al. discloses a method of making tempered glass sheets having reinforcing edge stresses. Turning to US 4,826,522, a glass sheet is passed through a furnace 1 and across two cooling plates (3 and 4) that temper and possibly bend the glass, see Figure 1. Then, the edges of the glass sheet is cooled by a cooling means 11, such as blown cooled gas, and such that the edges of the sheet are cooled faster than the remainder of the glass sheet, reference Figure 2 and its supporting text at column 2, line 48 through column 3, line 6.

Littleton et al. discloses a method of tempering glass by heating an entire glass sheet between the annealing and softening temperatures, and then by chilling the entire glass body below the strain temperature. Residual heat is removed such that a substantially uniform temperature gradient exists across the glass sheet. See US 2,285,596, column 2, lines 18-31.

ARGUMENTS

The Examiner rejects claims 1-8 under 35 U.S.C. §103(a) as being unpatentable over d'Iribarne et al. (US 4,826,522) in view of Littleton et al. (US Patent 2,285,596). It is submitted that claims 1-8 are allowable when those references and the claims are properly understood.

Claim 1, and its dependent claims 2-8, are allowable at least because one of their features relate to cooling a press-formed panel such that the temperature of the inner corners remain below the strain point temperature of the glass during cooling.

Specifically, the subject application in claim 1 recites:

“A method of manufacturing a display tube comprising press-forming a glass panel to form inner corners and then cooling the formed glass panel such that surface temperatures of the inner corners remain below a strain point temperature during said cooling.” (Emphasis added)

d'Iribarne et al. discloses a method of making tempered glass sheets having reinforcing edge stresses. In contrast to pending claim 1, d'Iribarne et al. does not relate to press-forming a glass panel to have inner corners. Consequently, d'Iribarne et al. cannot suggest cooling the formed glass panel such that that the surface temperatures of the inner corners remain below a strain point temperature during cooling.

Littleton et al. does nothing to close the substantial gap between claim 1 and d'Iribarne et al. Littleton et al. teaches tempering glass sheets by heating between the annealing and softening temperature and then cooling that sheet such that the temperature is below and remains below the strain temperature. Like d'Iribarne et al., Littleton et al. does not relate to press-forming a glass panel to have inner corners, and consequently Littleton et al. cannot suggest cooling those corners.

If the principles of d'Iribarne et al. were applied to a display tube, the result would be stressed edges but unstressed inner corners. Combining the teachings of d'Iribarne et al. and Littleton et al. may not be possible. d'Iribarne et al. teaching is to cool the edges of a hot glass sheet more than the center, see, for example, US 4,826,522, column 1, line 55 through column 2, line 4. However, Littleton et al. specifically teaches heating an entire glass sheet between the annealing and softening temperature and then rapidly cooling that sheet such that the temperature is below the strain temperature and heat is continued to be removed, thus preventing re-heating that reduces stress. These two approaches contradict, once cooled below the strain temperature glass stress changes are minor.

CONCLUSION

For the reasons advanced above, Appellant respectfully urges that claims 1-8 are patentable. Reversal of all rejections is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. If necessary, please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 20-0782 and please credit any excess fees to such deposit account.

June 2, 2004

Respectfully submitted,

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*****FIRST CLASS MAIL CERTIFICATION*****

I hereby certify that this paper and/or fee is being deposited on June 2, 2004 with the United States Postal Service as first class mail under 37 CFR 1.8 and is addressed to the COMMISSIONER FOR PATENTS, Mail Stop: Appeal Brief-Patent, P.O. Box 1450, Alexandria, VA 22313-1450.

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APPENDIX OF CLAIMS INVOLVED IN APPEAL

1. A method of manufacturing a display tube comprising-press-forming a glass panel to form inner corners and then cooling the formed glass panel such that surface temperatures of the inner corners remain below a strain point temperature during said cooling.
2. A method as claimed in claim 1, wherein a maximum_difference in surface temperatures between the inner corners and a centre of the glass during press-forming is less than 150°C.
3. A method as claimed in claim 1, wherein during at least a part of the step of press-forming the glass panel, a surface temperature at an inner_corner is kept below a surface temperature at the centre of the glass panel.
4. A method as claimed in claim 3 wherein after press-forming the inner corners are cooled more than the centre.
5. A method as claimed in claim 1 wherein the surface temperatures of the inner corners remain below the strain point of the glass during and after press-forming.
6. A method as claimed in claim 5 wherein the surface temperatures of the inner corners remain at least 30 degrees Kelvin below the strain point of the glass during and after press-forming.
7. A method as claimed in claim 1 wherein heat transfer elements improve heat transfer from the glass panel.
8. A method as claimed in claim 7 wherein stainless steel tissue forms a heat transfer element.